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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,352	07/30/2003	David M. Theobold	72255/32775	3469
23380 7590 07/26/2007 TUCKER ELLIS & WEST LLP 1150 HUNTINGTON BUILDING 925 EUCLID AVENUE CLEVELAND, OH 44115-1414			EXAMINER HARTMANN II, KENNETH R	
			ART UNIT 2616	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/631,352

Applicant(s)

THEOBOLD ET AL.

Examiner

Kenneth R. Hartmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 14-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____                                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____   | 6) <input type="checkbox"/> Other: ____                           |

**Detailed Action**

***Claim Objections***

1. Claim 15 is objected to because of the following informalities: a “;” exists after channel in line 2 and it makes the claim difficult to understand.

Claim 17 is objected to because of the following informalities: “packet loss” is mentioned twice as a link quality parameter in lines 2-3.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 14-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant discloses an “implementation” which can be considered a method, but refers back to the “apparatus” in the preamble. It is suggested that ---device--- replace “implementation.”

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 14-18 and 20-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Cavin (US 7,143,320).

For claim 14, Cavin discloses an apparatus comprising a tracking implementation for tracking signal strength of each wireless client's wireless link with each respective wireless access point for a plurality of wireless clients in communication with a plurality of access points (return signal strength indicators (RSSI) monitored at the AP's for each wireless client, see column 4, lines 48-58); and a control implementation for varying the operation of at least one of the respective wireless access points and wireless clients so as to acquire maximum signal strength for each wireless client's link with each respective wireless access point (increasing or decreasing the bit error rate of at the AP depending on the presence of interference, see column (column 5, lines 5-22).

For claim 15, Cavin discloses the apparatus as described above, wherein, the tracking implementation is configured to track one of a group consisting of packet error rate, channel rate, and processor rate (PER, see column 4, lines 50-51).

For claim 16, Cavin discloses the apparatus as described above, wherein the control implementation includes at least one control mechanism to vary the operation of at least one of the wireless access points and the wireless clients, wherein the at least one control mechanism is selected from a group including: a WLAN client admission control, a mechanism for varying the signal power of at least one of the clients and the access points (see column 4, lines 56-58), a mechanism for changing at least one of the data rate (see column 5, lines 27-43),

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and a mechanism for varying the packet length and other controllable protocol characteristics (see Fig. 1B).

For claim 17, Cavin discloses a tracking implementation for tracking a link quality parameter selected from a group consisting of multipath, signal interference (identifies intermittent interfering sources, see column 4, lines 43-45), packet loss (drop rate, see column 5, lines 26-33), signal quality (identifies intermittent interfering sources, see column 4, lines 43-45), transfer rate (rate is known in order to determine if it should be increased or decreased, see column 5, lines 35-43), and packet loss (drop rate, see column 5, lines 26-33) for each link between a wireless client and an access point for a plurality of wireless clients in communication with a plurality of access points (identifies intermittent interfering sources, see column 4, lines 43-45), a goal implementation for comparing the link quality parameter with a desired value to obtain a fitness measure (drop rate threshold, see column 5, line 28 and detecting presence of interfering sources requires a threshold, see column 4, line 43-45), and a control implementation for varying the operation of at least one of the plurality of wireless access points and plurality of wireless clients in response to the fitness measure, so as to acquire one of a group consisting of minimal multipath, minimal signal interference, minimal packet loss, minimal packet error rate and maximum transfer rate for each link between a wireless client and an access point for a plurality of wireless clients in communication with a plurality of access points (adjusting the bit rate depending on the drop rate of packets, see column 5, lines 23-43).

For claim 18, Cavin discloses the apparatus as described above, wherein the control implementation includes at least one control mechanism to vary the operation of at least one control mechanism is selected from a group including, a mechanism for varying the signal power of at least one of the clients and the access points (see column 4, lines 56-58); a mechanism for changing at least one of the data rate, coding and modulation of the wireless signal (see column 5, lines 39-43); and a mechanism for varying the packet length (see Fig. 1B).

For claim 20, Cavin discloses the apparatus as described above, wherein the signal quality parameter is packet loss and the control implementation varies the operation of at least one of the plurality of wireless access points and plurality of wireless clients to acquire minimal packet loss for each link between a wireless client and an access point for a plurality of wireless clients in communication with a plurality of access points (if PER exceeds a drop rate, then the bit rate is adjusted, see column 5, lines 23-43).

For claim 21, Cavin discloses the apparatus as described above, wherein the signal quality parameter is packet error and the control implementation varies the operation of at least one of the plurality of wireless access points and plurality of wireless clients to acquire minimal packet error for each link between wireless client and an access point for a plurality of wireless clients in communication with a plurality of access points (if PER exceeds a drop rate, then the bit rate is adjusted, see column 5, lines 23-43).

For claim 22, Cavin discloses the apparatus as described above, wherein the signal quality parameter is signal interference and the control implementation

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varies the operation of at least one of the plurality of wireless access points and plurality of wireless clients to acquire minimal signal interference for each link between a wireless client and an access point for a plurality of wireless clients in communication with a plurality of access points (detection of other interfering sources determines whether or not to increase or decrease the bit error rate in order to minimize interference, see column 4, lines 37-42).

For claim 23, Cavin discloses the apparatus as described above, wherein the signal quality parameter is transfer rate and the control implementation varies the operation of at least one of the plurality of wireless access points and plurality of wireless clients to acquire maximum transfer rate for each link between a wireless client and an access point for a plurality of wireless clients in communication with a plurality of access points (transfer rate is adjusted based on presence of interference and PER, see column 5, lines, 23-43).

***Claim Rejections - 35 USC § 103***

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cavin (US 7,143,320) in view of Lomp et al (US 2003/0043776).

For claim 19, Cavin discloses an apparatus as described above. Cavin does not disclose wherein the signal parameter is multipath and control implementation varies the operation of at least one of the plurality of wireless access points and plurality of wireless clients to acquire minimal multipath for each link between a wireless client and an access point for a plurality of wireless clients in communication with a plurality of access points. However, Lomp et al. do disclose preventing and monitoring multipath interference and adjusting to minimize it (rake receivers are used to minimize the distortion due to multipath interference, see paragraph 12, lines 4-9). Therefore, it would have been obvious to one of ordinary skill in the art to modify the apparatus of Cavin to include the rake receivers as taught by Lomp et al. The motivation for adding the rake receivers would be to account for this type of interference, rather than only signal interference.

9. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cavin (US 7,143,320) in view of King et al (US 2006/0171357).

For claim 24, Cavin discloses the apparatus as described above. Cavin does not disclose wherein the control is selected from a group consisting of change frequency, directionally steer an antenna and steer antenna polarization



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for at least one of the plurality of access points. King et al. does disclose selectively controlling the direction of the antenna used for communication (see paragraph 8, lines 1-9). Therefore, it would have been obvious to one of ordinary skill in the art to modify the apparatus of Cavin with the control of King et al. The motivation for controlling the antenna direction for communication would be to focus the antenna on the wireless client in need of signal strength, to increase the power to the client.

### ***Conclusion***

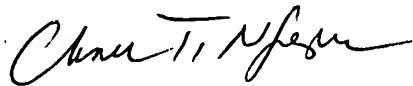
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth R. Hartmann whose telephone number is 571-270-1414. The examiner can normally be reached on Monday - Thursday, 10 - 3 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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